BRIEFER ARTICLES

METHOD OF REPLACING PARAFFIN SOLVENT WITH PARAFFIN

Some years ago LAND[1] proposed a method of insuring the gradual saturation with paraffin of the xylol now almost universally used as the clearing medium and paraffin solvent in the paraffin method. He suggested the placing of a section of fine wire screening below the level of the xylol in the shell vial upon which the paraffin ordinarily grated into the vial would be held. Such an arrangement obviates the danger of allowing the paraffin fragments to fall to the bottom of the container, there to be in contact with the material and to surround it almost at once with a high percentage of dissolved paraffin.

For some years previous to the publication of LAND'S suggestion in this matter we had been employing, in this laboratory, similar devices to insure the gradual saturation of the paraffin solvent. Some time ago, however, we replaced this method for most material with another which is more simple and has given consistently good results. In this scheme melted paraffin is carefully poured on the surface of the xylol in a shell vial until a plug of the desired thickness is formed. A hot needle run around the inside of the vial will loosen the plug of paraffin, which is then pushed down below the level of the xylol. We have never found an instance in which the paraffin plug slipped down to the bottom of the vial or indeed changed its original position appreciably.

The entire paraffin plug becomes rather rapidly saturated with xylol and a layer of xylol-paraffin soon forms at the lower surface of contact. If the vial is not shaken, a very gradual saturation of the xylol takes place, and at the end of 4–6 days the xylol has taken up its maximum quantity of paraffin. In practice we pour a plug of paraffin which will weigh 4–6 gr. into a vial containing 10–15 cc. of xylol.

The increase in time required according to this scheme in the paraffin method seems justified by the rather ideally slow replacing of the paraffin solvent by paraffin. It is often desirable to cool the vial containing the

[1] LAND, W. J. G., Microchemical methods, an improved method of replacing the paraffin solvent with paraffin. BOT. GAZ. **59**: 397. 1915.

xylol under the tap before pouring in the paraffin. The latter step requires only slight practice to be successful, and indeed the only effect of a too rapid pouring in of the melted paraffin seems to be the formation of strings of paraffin reaching down into the xylol. If the paraffin plug needs to be removed at any time, this can be accomplished readily by forcing through it a hot needle, the tip of which has been bent at right angles. The needle after cooling for an instant may be turned slightly and the plug pulled from the vial.—T. H. GOODSPEED, *University of California.*

ADAPTATION AND NATURAL SELECTION

I wish to correct a false impression which my paper on the agency of fire in the propagation of the longleaf pines (BOT. GAZ. **64**:497–508. 1917) has left in the minds of some of my correspondents, to whom it seems that the conclusions there reached might lead to the absurd economic paradox that forest fires should be encouraged for the conservation of our pine lumber supply. As a matter of fact, all the evidence produced in that paper was intended to show that it is their *adaptation for resistance* to fire which insures the survival of this species. The action of natural selection in this case, as in practically all others that have come under my observation, is negative and indirect. It preserves not by selection of the fit, but by elimination of the unfit, thus giving the best adapted a free hand in the struggle for existence.

In calling attention, therefore, to the peculiar relation between the longleaf pine and fire, there was no thought of suggesting that we should imitate the method of nature; but having learned that a clean forest floor and plenty of sunshine are essential conditions for the propagation of the longleaf pine, these conditions may be secured by other means than fire, such as judicious cutting and thinning, and a periodic cleaning up of the forest floor. Whether a well guarded ground fire at the proper season might not be a useful aid in accomplishing this last purpose is a question which must be left for the practical forester to decide.—E. F. ANDREWS, *Rome, Ga.*